BLOOD SUGAR ALCOHOL

Semper Fit
Health Promotion Brief

Overview

- What is Alcohol?
- Alcohol Break Down & Processing
- Alcohol & Blood Sugar
- Recommended Max for Men & Women
- The Hangover
- Myth Busters

What is Alcohol?

- Alcohol = Ethanol
- Fermented Beverage

Yeast Breaks Down Sugar
Result: Ethanol & Carbon Dioxide
Carbon Dioxide Evaporates
Result: Alcohol & Water
Distilled Spirits: Alcohol & Water are Separated

Alcohol Sources

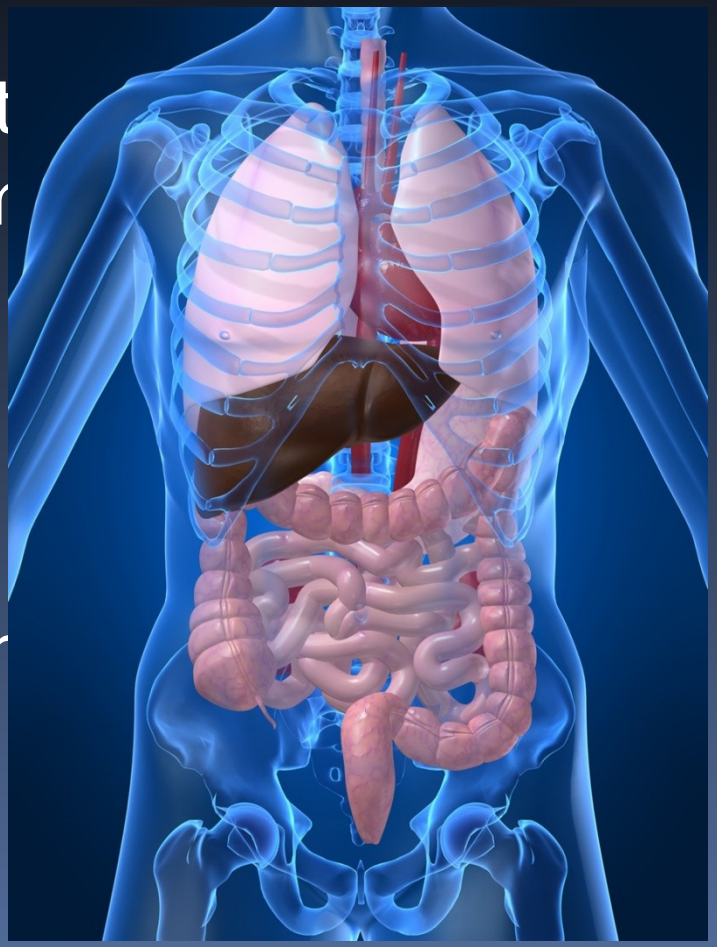
Drink	Source
Beer	Malted Barley
Wine	Grapes
Sake	Rice
Rum	Sugar Cane / Molasses
Vodka	Grain, Potatoes, Beets, Molasses &/or Other Plants
Whiskey	Malted Barley or Other Grains
Gin	Barley Malt or Other Grain flavored with Juniper Berries

Alcohol Content of Drinks

Drink	Alcohol Content
Beer	4 – 6%
Wine	7 – 15%
Sake	15 – 20%
Hard Liquor	40 - 95%

Alcohol Processing

- Alcohol is absorbed direct into the bloodstream from stomach
- Alcohol can’t be stored for later use in the body, alcohol processing takes priority over other nutrien breakdown



Alcohol Processing: Details

Stomach

- Up to 20% of alcohol enters bloodstream immediately
- Dissolves in the water in the blood

Intestines / Kidneys / Lungs

- The remaining 80% of alcohol moves to the intestines
- Kidneys eliminate 5% (urine); lungs exhale 5% (this is what shows up on Breathalyzers); the rest goes to the liver for processing

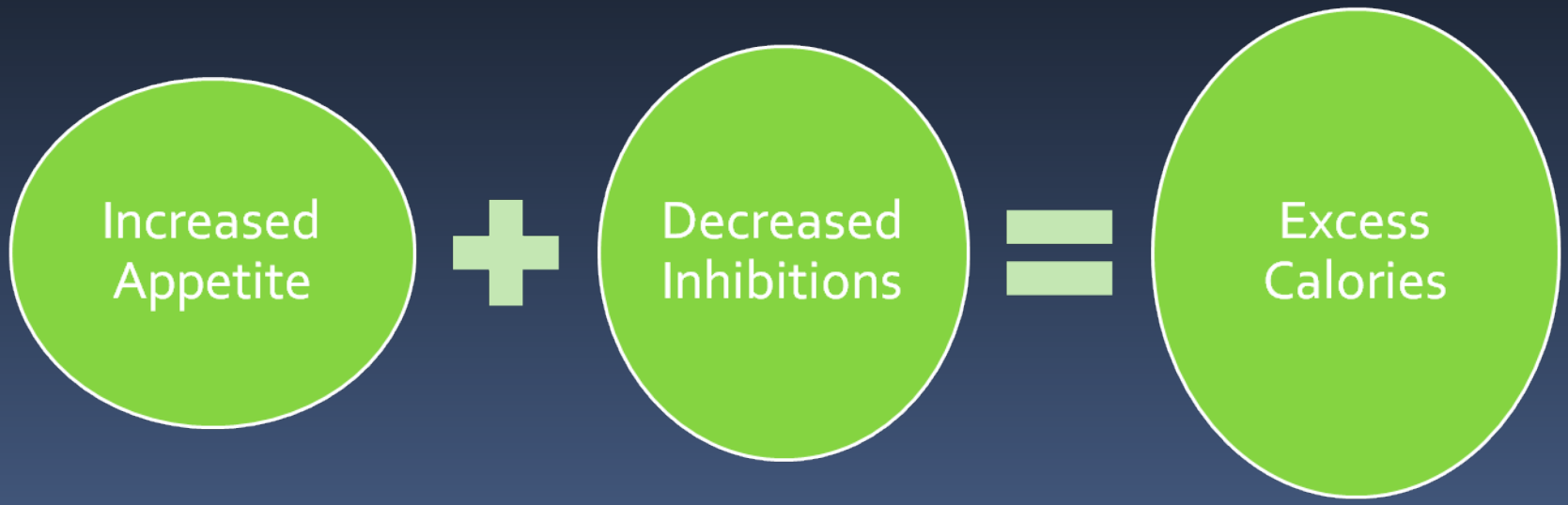
Liver

- Main site for alcohol breakdown in the body
- 150 lb person with a healthy liver can process 8 – 12 oz of beer, 3 – 4 oz of wine, or ½ - 1 oz of hard liquor
- 1 Drink = Peak in Blood Alcohol Content within 30 – 45 min

Factors that Affect BAC

- Alcohol concentration of the drink
  - Higher = Faster
- Carbonation (speeds absorption time)
- Stomach contents (food slows absorption)

Alcohol & Weight



Alcohol & Calories

Carbs = 4
Calories p/gram

Fats = 9
Calories p/gram

Proteins = 4
Calories p/gram

Alcohol = 7
Calories p/gram

If one 12 oz beer has 145 calories, how many are in six?

= 870 Calories !

If one Rum & Coke has 240 Calories, how many are in six?

= 1,440 Calories

Calorie & Carb Comparison

Beverage	***Serving Size***	***Calories Per Serving***	***Carbs Per Serving (g)***
Beer (Regular)	12 oz	145 – 150	10 – 14
Beer (Light)	12 oz	100 – 110	5 – 7
Wine (Red)	5 oz	100 – 125	4 – 5
Wine (White)	5 oz	100 – 125	<1 – 2
Distilled Spirits (80-proof)	1.5 oz	100	0

Alcohol & Blood Sugar

- Blood sugar is maintained by hormones that keep tabs on the levels:
  - Too high? Insulin is released to lower it
  - Too low? Glucagon works to get it from storage
- Alcohol causes blood sugar to rise fast triggers the release of insulin to lower it results in low blood sugar
- Over time, alcohol can lessen insulin's effectiveness, so blood sugar can get too high
- Most alcoholics have blood sugar issues

Of Note

- A 2006 study of 8 men showed that drinking artificially sweetened drinks vice sugar sweetened drinks with alcohol raised BAC more (0.05% vice 0.03% respectively).

- Mixing caffeine & alcohol could increase dopamine levels, which makes the combo more enjoyable & more addicting.

- Alcohol interferes with the body's ability to absorb certain vitamins, including B12, which helps the body process protein & aids with the development of red blood cells. Deficiency symptoms can include memory problems, nerve problems & depression.

Recommended Maxes

- Men = 2 drinks max per day
- Women = 1 drink max per day

- 1 Drink Defined =
  - 12 oz of beer
  - 8 oz of malt liquor
  - 4 - 6 oz of wine
  - 1 ½ oz of distilled spirits / hard liquor (gin, vodka, whiskey, rum)

The Hangover

- About 75% of drinkers have experienced at least 1 hangover
- Causes:
  - Dehydration (Alcohol increases urine output)
  - Stomach Lining Inflammation
  - Low Blood Sugar
  - Sleep Disruptions
  - Widening of Blood Vessels (Headache)
  - Alcohol Metabolites (Liver)

Stages of Sleep

Non-REM (Rapid Eye Movement) Sleep	
Stage N1: Transition into Sleep	Approx 5 min Eyes move slowly under lids, muscle activity slows, easily awakened
Stage N2: Light Sleep	Approx 10 – 25 min Eye movement stops, heart rate slows, body temp decreases
Stage N3: Deep Sleep	About 40 – 60 min Difficult to wake, brain waves slow, blood is directed away from brain & to muscles, which restores physical energy
REM Sleep	
REM: Dream Sleep	About 70 – 90 min after falling asleep Eyes move rapidly, breathing shallows, heart rate & blood

The Hangover: Part II

- What doesn’t work:
  - Hair of the Dog (Delays the inevitable)
  - Fried / Fatty Foods (after drinking)
  - Coffee
  - Acetaminophen (Liver toxicity)
- What might help:
  - Foods with Fat (before drinking)
  - Eggs (Cysteine)
  - Water
  - Bananas (Potassium)

Myth Busters

- Alcohol doesn't . . .
  - Help you sleep
    - It might make you drowsy initially, but alcohol interferes with deep, restful sleep
  - Fight infections
    - Alcohol can impair the body's ability to fight infections and may interfere with medications
  - Warm you up
    - Alcohol tends to increase the body's heat loss, which makes you more susceptible to cold

Questions?

Points of Contact

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http://www.marines.mil/unit/marforres/MFRHQ/MCCS/SemperFit/Health.aspx

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